

BARANOV, I. Ya.

Baranov, I. Ya. "Genesis of the Permian red conglomerates in the Northern Caucasus," Uchen. zapiski (Vost. n/D gos. un-t im. Molotova), Vol. XI, 1948 p. 49-58, with tables - Bibliog: 24 items

SO: U-3566, 15 March, 53, (Letopis 'zhurnal 'nykh Statey, No. 14, 1949).

BARANOV, I. Ya.

"Certain Ice Formation on the Ground's Surface," Priroda, No.10, 1949

BARANOV, I.Ya.

~~XXXXXXXXXX~~

Frozen ground in the "Scythian" burial mounds of the Pazyryk area in the
Altai Mountains. Izv. Vses. geog. ob-va 85 no.3:269-278 My-Je '53.

(MLRA 6:6)

(Altai Mountains--Mounds) (Altai Mountains--Frozen ground)

BARANOV, I. Ya.

Southern boundary of permafrost. Mat.k osn.uch.o merz.zon.zem.kory
no.2:38-44 '55. (MIRA 13:9)
(Frozen ground)

BARANOV, I. Ya.

USSR/ Geology - Rock formation

Card 1/1 Pub. 46 - 13/21

Authors : Baranov, I. Ya.; and Masurenkov, Yu. P.

Title : About the probatibility of the granitoids of the up-stream regions of the White River being of the Mesozoic age.

Periodical : Izv. AN SSSR. Ser. geol. 20/2, 121 - 127, Mar-Apr 1955

Abstract : An analysis is made of various geological factors related to the granitoids of the upper waters of the White River, such analysis leading to the conclusion that the granitoids were formed after the lower Jurassic period. Eight USSR references (1934-1953). Table; map; drawing.

Institution :

Submitted : 23 April, 1953

BARANOV, I. Ya.

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 7,
pp 73-74 (USSR) 15-1957-7-9285

AUTHOR: Baranov, I. Ya., Masurenkov, Yu. P.

TITLE: The Precambrian and Paleozoic Crystalline and Metamorphic Rocks in the Basins of the Shakhe and Belaya Rivers
(Dokembriy i paleozoy basseynov rek Shakhe i Beloy
(kristallicheskaya i metamorficheskaya tolshchi))

PERIODICAL: Uch. zap. Rostovsk. n/D un-t, 1956, vol 34, pp 17-25

ABSTRACT: Amphibole gneiss, diorite gneiss, two-mica gneiss, chlorite and zoisite gneiss, amphibolite, and varieties of amphibole schist (the crystalline group) are to be distinguished among the gneisses and crystalline schists of the region. They are cut by a series of granitic and basic rocks. In contrast to younger formations, the crystalline group is characterized by 1) potassic types of orthogneisses (up to 35% relict microcline and orthoclase); 2) plagioclase occurring in almost all varieties

Card 1/3

15-1957-7-9285

The Precambrian and Paleozoic Crystalline and Metamorphic Rocks in the Basins of the Shakhe and Belaya Rivers (Cont.)

of crystalline schists and gneisses; 3) the greenish-brown variety of biotite; 4) amphiboles with bluish-green colors; 5) extremely abundant epidote-zoisite minerals; 6) great variety and abundance of accessory minerals; 7) the absence of relict textures; and 8) the mineral association of the amphibolite facies and, in part, of the granulite facies. The crystalline rocks were subjected first to high-grade metamorphism, and later to a lower grade; the metamorphism, provisionally referred to the Precambrian, parallels that of the orthogneisses of the western Kavkaz (Caucasus). All varieties of the metamorphic group may be considered as belonging to one of the following principal types: quartz-chlorite, quartz-mica, quartz-amphibole-biotite, quartz-feldspar-biotite, quartz-feldspar-amphibole schists, and also albitophyre, quartzite, phyllite, and marble. An outline of the stratigraphic sequence of the metamorphic schists of the northeastern Kavkaz (Caucasus) is proposed. The metamorphic schists (lower and middle Paleozoic) are distinguished from the crystalline group (Precambrian) by the follow-

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15-1957-7-9285

The Precambrian and Paleozoic Crystalline and Metamorphic Rocks in the Basins of the Shakhe and Belaya Rivers (Cont.)

ing features: 1) microcline occurs only in the contact aureole next to microcline granites; 2) plagioclase occurs in the contact aureole next to the Urushtenskiy granitic complex and in albitophyres; 3) biotite is brown, except for that in the contact aureole of the Urushtenskiy granite complex; 4) amphiboles are generally green; 5) epidote-zoisite minerals are less abundant; 6) there are few accessory minerals; 7) relict textures are marked in almost all rock varieties; and 8) the mineral association is of the greenschist facies.

Card 3/3

S. P. Bryzgalina

BARANOV, I.Ya.

Research carried out at the Zagorsk Station. Mezhdunar. geofiz. god
no. 3:74-75 '57. (MIRA 11:5)

(Zagorsk—Frozen ground)

Baranov, I. Ya.

AUTHOR: Baranov, I. Ya.

10-58-2-3/30

TITLE: Some Regularities in the Development of the Strata of Permafrost and Seasonal Ground Freezing (Nekotoryye zakonomernosti razvitiya tolshch mnogoletnemerzlykh gornykh porod i sezonnogo promerzaniya pochvy)

PERIODICAL: Izvestiya Akademii nauk SSSR . Seriya geograficheskaya, 1958
Nr 2, pp 22-35 (USSR)

ABSTRACT: The author describes the conditions necessary for the development of cryogenic formations within the USSR, starting with general geographical conditions, e.g. the influence of adjacent oceans etc. In this connection, he mentions the names of the following Soviet scientists: V.I. Vernadskiy, A.A. Zemtsov, Popov and Shumskiy. He lists three types of permafrost formations and explains their structural-genetic criteria. The epigenetic type dates back to the quaternary period and is characterized by the heterogeneity of its cryogenic composition and structure. Studies concerning the varieties of this type were made by several scientists such as F.G. Bakulin (1955), A.I. Popov (1953), P.A. Shumskiy (1955) and Ye.M. Karashev. The scientists Figurin (1823), Lopatin (1876), Popov (1953)

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10 58 243/30

Some Regularities in the Development of the Strata of Perma-Frost and Seasonal Ground Freezing

devoted their research to the syngenetic type of permafrost. This type is not formed as a whole; it occupies the upper layers only, because of the synchronous sedimentation and the freezing of the accretion accumulated as a result of the development of erosional, deluvial, abrasive, glacial,olian and similar physical-geological processes. Therefore, the composition of syngenetic layers does not include rocks which are older than the quaternary period. This is the main difference between the syngenetic and the epigenetic types (Figure 2). The third, the polygenetic type, is formed from syngenetic and epigenetic strata developing simultaneously or at different times. Here again, are three different schemes depending on the geomorphological and geological characteristics of the respective territories. The distribution of permafrost in the individual physical-geographical zones of the USSR is shown in a table. Figure 3 gives a picture of the cryogenic formations (seasonal and perennial) of the lithosphere in polar regions. According to the analyses of cryogenic composition and permafrost structure in Eurasia, four different geocryolithological zones can be distinguished: the arctic, subarctic, temperate and southern zone. Two additional zones can be discerned within the boundaries of polar seas and shelves: the arctic-continental oceanic zone and the arctic-

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1-58-2-3/30

Some Regularities in the Development of the Strata of Perma Frost and Seasonal Ground Freezing

oceanic zone (Figure 4). A detailed description of these different zones is given. There are 3 diagrams, 1 chart, 1 table, and 16 references of which 10 are Soviet, 5 American and 1 German.

ASSOCIATION: Institut merzlotovedeniye imeni V.A. Obrucheva AN SSSR
(Institute for the Study of Permafrost imeni V. A. Obruchev
of the AS USSR)

1. Permafrost--USSR 2. Cryogenics--USSR

Card 3/3

BARANOV, I.Ya., otv.red.; TSYTOVICH, N.A., otv.red.; CHEKOTILLO, A.M.,
otv.red.; BANKVITSER, A.L., red.izd-va; MAKUNI, Ye.V., tekhn.red.

[Studies in permafrost construction engineering] Materialy po
inzhenernomu merzlotovedeniyu. Moskva, Izd-vo Akad.nauk SSSR,
1959. 199 p. (MIRA 12:8)

1. Mezhdunarodnoye soveshchaniye po merzlotovedeniyu.
7th, Moscow, 1956.
(Building--Cold weather conditions)

ZHUKOV, V.F., kand.tekhn.nauk, otv.red.; BARANOV, I.Ya., prof., doktor
geograf.nauk, otv.red.; FEODOT'YEV, K.M., red.izd-va; GUSEVA,
I.N., tekhn.red.

[Materials on general geocryology] Materialy po obshchemu
merzlotovedeniiu. Moskva, Izd-vo Akad.nauk SSSR, 1959. 270 p.
(MIRA 12:9)

1. Mezhdudomstvennoye soveshchaniye po merzlotovedeniyu.
7th, Moscow, 1956. 2. Institut merzlotovedeniya im. V.A.
Obrucheva Akademii nauk SSSR (for Baranov).
(Frozen grounds)

BARANOV, I.Ya.

Genesis and paleogeography of Permian red beds in the Northern Caucasus.
Uch. zap. RGU 44:27-32 '59. (MIRA 14:1)
(Caucasus, Northern—Rocks, Sedimentary)

BARANOV, I.Ya.; AYANOV, V.M.

New data on the age of granitoids in the Dzhuga-Chelepsy crystalline
massif of the Northern Caucasus. Uch. zap. RGU 44:101-106 '59.
(MIRA 14:1)

(Caucasus, Northern--Granite)

BARANOV, I.Ya.; SVIRIDOV, V.V.

Intrusive rocks in the Urup copper-pyrite deposits in the north-western Caucasus. Izv.vys.ucheb.zav.; geol.i razv. 2 no.8: 83-89 Ag '59. (MIRA 13:4)

1. Rostovskiy-na-Donu gosudarstvennyy universitet.
(Urup region (Caucasus, Northern)--Chalcopyrite)

BARANOV, I.Ya.

Some problems in the history of permanently frozen strata on
the Kola Peninsula. Trudy Inst.merz1.AN SSSR 16:78-80 '60.
(MIRA 13:4)

(Kola Peninsula--Frozen ground)

BARANOV, I.Ya.; SVIRIDOV, V.V.

Dikes and copper-pyrite ore formation in the Urupskiy deposit of the Northern Caucasus. Izv. vys. ucheb. zav.; geol. i razv. 3 no.5:98-100 My '60. (MIRA 13:11)

1. Rostovskiy-na-Donu gosudarstvennyy universitet.
(Urupskiy region—Copper ores)
(Urupskiy region—Pyrites)

BARANOV, I. YA.

PHASE I BOOK EXPLOITATION

SOV/5885

Akademiya nauk SSSR. Institut merzlotovedeniya

Polevyye geokriologicheskiye (merzlotnyye) issledovaniya; metodicheskoye rukovodstvo (Geocryological [Permafrost] Field Studies; Methodological Handbook) Moscow, Izd-vo AN SSSR, 1961. 422 p. Errata slip inserted. 1500 copies printed.

Editorial Board: Chairman, I.Ya. Baranov, Doctor of Geographical Sciences, Professor, S.P. Kachurin, Doctor of Geographical Sciences, A.I. Yefimov, Candidate of Geographical and Mineralogical Sciences, and N.A. Vel'mina, Candidate of Technical Sciences; Eds. of Publishing House: A.A. Priklonskiy and I.N. Nikolayeva; Tech. Ed.: V.G. Laut.

PURPOSE: This book is intended for the growing number of specialists in various branches of the national economy who are concerned with engineering problems in permafrost soils.

COVERAGE: Three types of geocryological field investigations are discussed:
1) geocryological surveying, for detecting regularities in cryogenic processes, compiling geocryological maps illustrating the distribution of
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Geocryological [Permafrost] Field (Cont.)

SOV/5885

permafrost areas, and for indicating the boundaries of sections with various degrees of suitability for construction; 2) subject studies of cryogenic formations (ice bodies, heaving mounds, polygonal-veined ice, etc.) and postglacial formations (thermokarst, solifluctional, etc.), which are of great importance for practical engineering; and 3) long-range stationary and semistationary observations during geocryological and engineering-geocryological surveying, for studying the dynamics of the temperature field in the zones of seasonal temperature fluctuations, regimen of the layers of seasonal freezing and thawing, heaving phenomena, fissure formation, subsidence, ground creeping, mechanical and thermal interaction between the structures and enclosing rocks or foundation grounds, etc. The handbook was compiled by a group of staff members of the Institute of Permafrost Study imeni V.A. Obruchev, AS USSR. No personalities are mentioned. References follow individual chapters.

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Introduction by I.Ya. Baranov

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Ch. II. Nature of Studies in the Geocryological Survey 37
The distribution of permafrost rocks, the layer of seasonal freezing and thawing, and the temperature field of rocks are discussed.

Ch. III. Some Field Laboratory Studies 93
The analysis of physical properties of frozen rocks, the application of the crystallooptic method, and the preservation of samples in the frozen state are discussed.

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Geophysical investigations, the application of aerial methods, the geobotanical method, and the investigation of underground waters and surface waters are discussed.

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Appendix II. Questionnaire Form for Field Records of Permafrost
soils

420

AVAILABLE: Library of Congress

SUBJECT : Geology and Geography

Card 5/5

MM/wrc/bc
2-8-62

BARANOV, I. Ya., KUDRYAVTSEV, Vladimir Aleksandrovich

"Permafrost rocks of Eurasia"

report to be submitted for the Intl. Conference on Permafrost, Purdue Univ.,
Lafayette Indiana, 11-15 Nov 63

BARANOV, I. Ya.,

"Zonal relationships governing the development and distribution of permanently frozen rocks"

report to be submitted for the Intl. Conference on Permafrost, Purdue Univ., Lafayette Indiana, 11-15 Nov 63

BARANOV, I.Ya.; RODZYANKO, N.G.

Association of datolite mineralization with small intrusions.

Izv. vys. ucheb. zav.; geol. i razv. 6 no.9:145-148 S '63.

(MIRA 17:10)

1. Rostovskiy gosudarstvennyy universitet.

BARANOV, Ivan Yakovlevich

[Principles of the geocryological (permafrost)
regionalization of an area of permanently frozen rocks]
Printsipy geokriologicheskogo (merzlotnogo) raionirova-
niia oblasti mnogoletnemerzlykh gornnykh porod. Moskva,
Nauka, 1965. 146 p. (MIRA 18:11)

ACC NR: AP6028798

SOURCE CODE: UR/0033/66/043/004/0846/0853

AUTHOR: Baranov, I. Ya.

ORG: Institute of the Physics of the Earth, Academy of Sciences, SSSR
(In-t fiziki Zemli Akademii nauk SSSR)

TITLE: Permafrost and its development during the evolution of the earth as a planet

SOURCE: Astronomicheskii zhurnal, v. 43, no. 4, 1966, 846-853

TOPIC TAGS: cryogenic formation, sublimation, cryosphere, planetary development, solar system, permafrost, Earth planet, *cosmogony*, *PLANETARY ENVIRONMENT*

ABSTRACT: The distribution of cryogenic formations in the Universe is discussed. They developed under different physical conditions and existed constantly in the form of "ice" as condensation of cosmic dust appearing in cometary bodies and in cryospheric boundaries of planets. Cryogenic formations are characterized by the presence of matter capable of crystallization from the vapor and liquid state and also by sublimation from a solid state at appropriate temperatures. Cryogenic formations appear on planets at the boundaries of different structures and propagate on one or several enveloping surfaces. Cryospheres have "constantly" varying "negative temperatures which sometimes can change

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UDC: 525.215

ACC NR: AP6028798

their temperature sign. Cryospheres appear at various stages of planetary evolution depending upon the distance of the planet from the Sun. Many epochs of relative cooling in the development of the Earth are analyzed. The Earth's position among the planets of the solar system represents a special condition in the development of cryogenic formation of the water series. The greatest cooling started in the Quaternary period and continues to the present. Mars has a different cryogenic structure characterized by a negligible matter content in its atmosphere and lithosphere for forming cryophyllite minerals and rocks. It is possible to assume that on Mars permafrost formations in its lithosphere are omnipresent forming a cryogenic barrier. Water vapor perculating from the planet's interior condenses on the barrier which consists of two layers, the upper representing frozen rocks and the lower containing ice.

SUB CODE:03 / SUBM DATE: 11Dec65/ ORIG REF: 007/ OTH REF: 001

Cord 2/2

BARANOV, K. A.

27977. BARANOV, K. A. Zheleznyi kuporos v konkreŭsiakh. (Priroda, 1946, no. 4, p. 49-50, illus.) *Title tr.:* Green vitriol in concretions

Crystals of ferrous sulphate (melanterite) found in pyrite concretions from Yuryung-Tumus Peninsula (Laptev Sea) are described. The occurrence of the crystalline green vitriol is explained by the negative temperature of permanently frozen ground which prevents its leaching out by underground waters.

Copy seen: DLC; MH.

BARANOV, K. A.

27974. BARANOV, K. A. O nekotorykh kriosfernykh teksturakh chetvertichnykh otlozheniĭ Arktiki. (Priroda, 1946, no. 6, p. 58-99, illus.) *Title tr.:* On the structure of some cryogenic Quaternary deposits in the Arctic.

The peculiar structure of some Quaternary deposits in the Nordvik - Khattanga region (Krasnoyarskiy Kray) is studied. Two types of structure are noted in such deposits in permafrost, and their origin is discussed.

Copy seen: DLC; MII.

BARANOV, K. A.

PA 27153

USSR/Geology
Sands

Nov 1946

"New Formations in the Sands of the Poltava Layer,"
K. A. Baranov, $\frac{1}{2}$ p

"Priroda" No 9

A description of new growth which has appeared in
the sands of White Valley near the city of Dnepropetrovsk.

ID

27153

PA 27273

BARANOV, K. A.

Nov 1946

USSR/Physics
Concretions

"The Tendency of Concretion Toward Spherical Shapes,"
K. A. Baranov, 1½ pp

"Priroda" No 9

Note on the observance of tendencies toward spherical
shapes of elementary concretions and colonies of con-
cretions.

27T93

ID

BARONOV, K. A.

"Seasonal Variations in the Salt Composition of the Laptev Sea," Priroda, No 1, 1947 (55-56).
(Meteorologiya i Gidrologiya, No 6 Nov/Dec 1947)

SO: U-3218, 3 Apr 1953

BARANOV, K.A.

Use of Ukrainian loess concretions as markers. Biol. Zhurn. chetv.
per. no.19:73-75 '53. (MLRA 7:11)
(Siberia, Northern--Elephants, Fossil) (Elephants, Fossil--
Siberia, Northern)

USSR/Cosmochemistry - Geochemistry. Hydrochemistry, D

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 745

Author: Baranov, K. A.

Institution: Academy of Sciences USSR

Title: On Carbonate Formation and the Chemical Composition of the Saline Waters of the Lakes in the Kulund Steppe

Original

Periodical: Izv. AN SSSR, Geological Series, 1956, No 5, 92-98

Abstract: The results of the processing of the accumulated statistical material on the hydrochemistry and carbonate formation in reservoirs with more exact data and a more effective method of expressing the chemical composition are given. From 1931 to 1944 a general increase in the salinity of the lakes was noticed; during this process continuous differentiation of the dissolved salts took place. The chemical composition of the lake deposits remained uniform over the entire area during that time. Two types of concretions have been established: a calcite-magnesian and a calcitic, with practically constant internal

Card 1/2

USSR/Cosmochemistry - Geochemistry. Hydrochemistry, D

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 745

Abstract: composition in each type. Concretion formation, like deposition, does not depend on changes in the hydrochemical conditions of the reservoirs (within the limits of the concentrations investigated), and, possibly, is determined by the contact of waters of different composition and temperature.

Card 2/2

BARANOV, K.A.

New formations of siderite in talc schists of the Krivoy Rog
Basin. Min.shor. no.11:354-356 '57. (MIRA 13:2)

1. Gornorudnyy institut, Kiyev.
(Krivoy Rog Basin--Talc) (Krivoy Rog Basin--Siderite)

BARANOV, K.A.

Natural classification of concretions. Uch. zap. IAGU no.9:
19-52 '61. (MIRA 15:7)

(Concretions--Classification)

BARANOV, K.A.

Connection between late concretionary and telethermal processes.
Uch. zap. IAGU no.9:53-70 '61. (MIRA 15:7)
(Concretions) (Mineralogy)

BARANOV, K.A.

Carbonate "tree" of a salt dome deposit. Uch. zap. IAGU no.9:
71-75 '61. (MIRA 15:7)
(Khatanga Gulf region--Salt domes)

BARANOV, K.A.

Obtaining synthetic rhodochrosite from manganite-calcite mixture.
Uch. zap. IAGU no.9:77-81 fol. (MIRA 15.7)
(Rhodochrosite) (Manganite) (Calcite)

BARANOV, K.; LITOVCHENKO, Z.; YAKOVENKO, L.

Oligocene barite and quartz concretions of the Nikopol' region.
Uch. zap. IAGU no.9:33-36 '61. (MIRA 15:7)
(Nikopol' region (Dnepropetrovsk Province)--Barite)
(Nikopol' region (Dnepropetrovsk Province)--Quartz)
(Concretions)

BALANCE, N. S.

1955-1956

Results of researches for the first time in the world
in the field of the history of the development of the
nation. (The author's name is not mentioned in the text.)

642 10 17 19
DAVIDENKO, P.A.; BARANOV, K.G.; SHVARTS, Ye.Ya.

Finishing parts with heated nitro lacquer. Der. prom. 6 no.5:17-19
My '57. (MIRA 10:6)

1. Moskovskiy derevoobrabatyvayushchiy zavod Glavchasproma Minister-
stva priborostroyeniya i sredstv avtomatizatsii SSSR.
(Woodworking industries) (lacquers and lacquering)

DAVIDENKO, P.A.; SHVARTS, Ye.Ya.; BARANOV, K.G.

DAVIDENKO, P.A.; SHVARTS, Ye.Ya.; BARANOV, K.G.

Decorative elements from sawdust. Der.prom. 6 no.8:22-23 Ag '57.
(MIRA 10:11)

1. Derevoobrabatyvayushchiy zavod Glavchasroma.
(Wood, Compressed) (Clocks and watches)

RUSAN, V.G.; KULIKOVA, I.I.; BARANOV, K.N.

New techniques used in crushing rock crystal. Opt.-mekh.prom. 25

no.4:50-51 Ap '58.

(MIRA 11:10)

(Quartz) (Crushing machinery)

BARANOV, K.N. (Moscow)

Equilibrium in separating ternary systems with salting-out.
Zhur. fiz. khim. 35 no.3:548-557 Mr '61. (MIRA 14:3)
(Systems(Chemistry)) (Salting-out)

L 1146-66 (A) EWP(c)/EWP(j)/EWP(k)/EWP(d)/EWT(m)/EWP(h)/T/EWP(l)/EWP(v) RM
ACCESSION NR: AP5021997 UR/0286/65/000/014/0075/0075
AUTHOR: Novikov, G. V.⁴⁴; Tikhomirov, A. F.⁴⁴; Satayev, L. S.⁴⁴; Baranov, K. N.⁴⁴ 35
TITLE: A mechanism for sealing the rims of automobile tires. Class 39, No. 172979
SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 14, 1965, 75
TOPIC TAGS: industrial automation, vulcanization, rubber working machinery
ABSTRACT: This Author's Certificate introduces a mechanism for sealing the rims of automobile tires. Mounted on the shaft of the assembly machine is a drive mechanism for a circular spring with thrust levers. The drive mechanism for the circular spring is made in the form of a ring-type pneumatic cylinder hinged to the thrust levers which carry the circular spring to increase the range of applications of the assembly machine and the operational use between repairs.
ASSOCIATION: none
SUBMITTED: 23Jul58
NO REF SOV: 000 ENCL: 01
OTHER: 000 SUB CODE: IE
Card 1/2

L 1146-66

ACCESSION NR: AP5021997

ENCLOSURE: 01

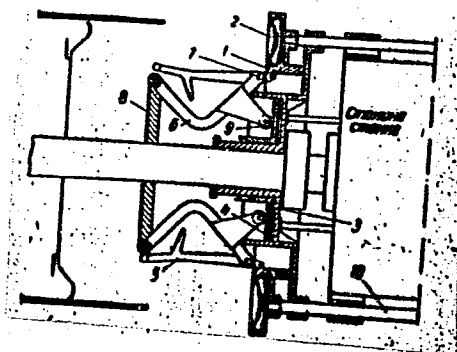


Fig. 1. 1--mold; 2--tire tube;
3--pneumatic cylinder; 4--pis-
ton; 5--squeezing lever; 6--
--thrust lever; 7--axle; 8--
--spring; 9--roller; 10--rod

KC
Card 2/2

BANANOV, K.P., veter. vrach (Vladimirskaya oblast')

Ways for eliminating trichophytosis. Veterinarika 12 no.12:
23 D '65. (MIRA 19:1)

BARANOV, K. V.

Baranov, K. V. "The calibration of round profiles with a trapezoidal oval," Trudy Stalinskogo obl. otd-niya VUZOV, No 1, 1949, p. 57-60

SO: 3-2241, 1 December 1943, (Letov's Journal "Leningrad State", No. 1, 1943)

BIRUNI, Abu Raykhan [al-Biruni]; BELENITSKIY, A.M. [translator];
LEMMLEYN, G.G., prof., red. [deceased]; BARANOV, Kh.K.,
prof., red.; DOLININA, A.A., red.; ZYRIN, A.A., red.
izd-va; KONDRAT'YEVA, M.N., tekhn. red.

[Collection of information for the recognition of precious
minerals; mineralogy] Sobranie svedenii dlia poznaniia dra-
gotsennostei; mineralogiia. Stat'i i primechaniia A.M.
Belenitskogo i G.G.Lemmleina. Leningrad, izd-vo AN SSSR,
1963. 518 p. Translated from the Arabic. (MIRA 17:1)

BARANOV, L.

Safe gas welding procedures. Stroitel' 8 no.7:31 J1 :02.
(MIRA 15:8)
(Gas welding and cutting--Safety measures)

BARANOV, L. inzhener.

Equipment for rigging work. Stroitel' 2 no.6:23-29 Je '56.

(MLRA 10:1)

1. Glavnyy tekhnicheskyy inspektor TSentral'nogo komiteta profsoyuza
rabochikh stroitel'stva.

(Hoisting machinery)

BARANOV, L., inzh.-mekhanik [deceased]

Testing deaerators. Mor. flot. 25 no. 12:30-31 D '65.
(MFA 18:12)

BARANOV, L.A.; KUL'BA, V.V.

Noncontact remote control system for traction sub-
stations. Elek.i tepl. tiaga no.7:1-3 J1 '60.
(MIRA 13:8)

1. Inzheneriy po teleupravleniyu 7-go uchastka
energосnabzheniya.
(Electric railroads--Substations)
(Remote control)

BARANOV, G.A., inzh.; SERGEYVA, G.I., inzh.; STANOVICH, P.A.; VERTIKOVA, T.A.

Using alcohol-containing waste products in chemical industries as
a type of reagent in the flotation of coal slurry. Demonstratsy Kuz-
ni. Uglodob., no.2:93-116 '86. (MIRA 12:10)

BARANOV, I. I.

Journal of the formation of the system of the ... (KIRA 18:5)

1. Baranovskiy institut rekonstruktsii i razvitiya.

BARANOV, L.A.;--ROGOVSKIY, L.V., redaktor; KRASIL'SHCHIK, S.I., redaktor;
TOKER, A.M., tekhnicheskiy redaktor

[Booklet on safety measures for the excavation worker] Pamiatka
po tekhnike bezopasnosti dl9a zemlskopa. 4 izd. Moskva, Gos. izd=vo
lit-ry po stroitel'stvu i arkhitektura, 1954. 38 p. (MLRA 7:8)

1. Russia (1923- U.S.S.R.) Ministerstvo stroitel'stva. Otdel
tekhniki bezopasnosti i promyshlennoy sanitarii.
(Excavation--Safety measures)

BARANOV, L.A.

BERNADINEER, Grigoriy Petrovich; GORBATOV, Vladimir Ivanovich; BARANOV, L.A.,
redaktor; YEVSEYEVA, M.V., redaktor izdatel'stva; BORONEV, N.K.,
tekhnicheskiy redaktor

[Safety engineering in masonry work] Tekhnika bezopasnosti pri
proizvodstve kamennykh rabot. Moskva, Gos. izd-vo lit-ry po
stroit. i arkhitekture, 1956. 16 p. (MLRA 10:1)
(Masonry--Safety measures)

GORBATOV, Vladimir Ivanovich; TOROPOV, Aleksandr Sergeyevich; BARANOV, L.A.,
redaktor; YEVSEYEVA, M.V., redaktor izdatel'stva; NAGISHKINA, T.M.,
tekhnicheskiiy redaktor

[Safety engineering in building and using scaffolding and supporting
structures] Tekhnika bezopasnosti pri ustroistve i ekspluatatsii
lesov i podmostei. Moskva, Gos.izd-vo lit-ry po stroit. i arkhit.,
1957. 41 p. (MLRA 10:8)

(Scaffolding--Safety measures)

BERNADINER, Grigoriy Petrovich; GORBATOV, Vladimir Ivenovich; BARANOV, L.A.,
redaktor; YEVSEYEV, M.V., redaktor izdatel'stva; NAGISHKINA, T.M.,
tekhnicheskiy redaktor

[Safety engineering in roofing work] Tekhnika bezopasnosti pri
proizvodstve krovel'nykh rabot. Moskva, Gos.izd-vo lit-ry po
stroit. i arkhitekt., 1957. 21 p. (MIRA 10:8)

(Roofing--Safety measures)

BARANOV, L., inzh.; RYAZANTSEV, K., inzh.

Motion picture on safety measures in construction. Bezop. truda
v prom. 2 no.1:38 Ja. '58. (MIRA 11:1)
(Motion pictures in industry)

BARANOV, L.A., inzh.

Safety measures in digging trenches and foundation pits. Bezop.trudn
v prom. 2 no.3:23-24 Mr '58. (MIRA 11:3)
(Earthwork)

BARANOV, Lev Aronovich; Toropov, A.S., red.; TARAYEVA, Ye.K., red.izd-va;
GUSEVA, S.S., tekhn.red.

[Methods of working out problems in safety engineering during the
planning of construction organization] Metodika razrabotki voprosov
tekhniki bezopasnosti pri proektirovanii organizatsii stroitel'stva.
Moskva, Gos. izd-vo lit-ry po stroit., arkhitekt. i stroit. materialam,
1958. 53 p. (MIRA 11:5)
(Building--Safety measures)

BARANOV, L.A., inzh., red.; KHAVIN, B.N., red.izd-va; BOROVNEV, N.K.,
tekhn.red.

[Regulations on safety engineering for construction yards
making plain and reinforced concrete products. Effective as of
May 1, 1959] Pravila tekhniki bezopasnosti dlia pripostroech-
nykh poligonov po izgotovleniiu izdelii iz betona i zhelezobetona.
Vvodiatsia v deistvie s 1 maia 1959 g. Moskva, Gos.izd-vo lit-ry
po stroit., arkh. i stroit.materialam, 1959. 21 p.

(MIRA 12:9)

1. Vsesoyuznyy tsentral'nyy sovet professional'nykh soyuzov.
(Concrete construction--Safety measures)

BARANOV, L.A., inzh.

Analyzing causes of accidents in building. Bezop.truda v prom. 3
no.7:12-14 J1 '59. (MIRA 12:11)
(Building--Accidents)

BARANOV, L.A.; PAVLOV, B.A., starshiy inzh.; PODLYASHUK, A.B., inzh.,
red.

[Work safety for laying brick walls at the level of roofs made
of large slabs] Obespechenie bezopasnosti truda pri kladke
kirpichnykh sten na urovne perekrytii iz krupnykh panelei.
Moskva, Gosstroizdat, 1960. 19 p. (MIRA 14:12)

1. Akademiya stroitel'stva i arkhitektury SSSR, Institut orga-
nizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu.
Byuro tekhnicheskoy informatsii. 2. Glavnyy inzh. sektora
tekhniki bezopasnosti Nauchno-issledovatel'skogo instituta orga-
nizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu
Akademii stroitel'stva i arkhitektury SSSR (for Baranov). 3. Sektor
tekhniki bezopasnosti Nauchno-issledovatel'skogo instituta orga-
nizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu
Akademii stroitel'stva i arkhitektury SSSR (for Pavlov).
(Bricklaying--Safety measures)

BARANOV, L.A., inzh.; AZRILYANT, Ya.M., red. izd-va; KOROVNEV, N.K.,
tekhn. red.

[Handbook on accident prevention for the excavator]Pamiatka po
tekhnike bezopasnosti dlia zemlekopa. Izd.5., perer. Moskva,
Gosstroizdat, 1961. 14 p. (MIRA 15:9)
(Excavation--Safety measures)

BARANOV, L.A., inzh.; CHEKHOVSKAYA, T.P., red. izd-va; BOROVNEV, N.K.,
tekhn. red.

[Instructions on accident prevention for themason] Pamiatka po
tekhnike bezopasnosti dlia kamenshchika. Izd.2., dop. Moskva,
Gos.izd-vo lit-ry po stroit., arkhitekt. i stroit. materialam, 1961.
22 p. (MIRA 14:12)

(Masonry---Safety measures)

BARANOV, L.A., ; OFFERMAN, I.V., starshiy inzh.; TABUNINA, M.A., red.
izd-va; BOROVNEV, N.K., tekhn. red.

[Temporary instructions VI 1-61 on accident prevention in the
assembly of buildings out of large slabs and blocks] Vremen-
naya instruktsiya po tekhnike bezopasnosti pri montazhe zdaniy
iz krupnykh panelei i blokov (VI 1-61). Moskva, Gosstroizdat,
1961. 70 p. (MIRA 15:7)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut organi-
zatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu.
2. Glavnyy inzhener sektora organizatsii truda, tekhniki bez-
opasnosti i stroitel'nogo instrumenta Nauchno-issledovatel'skogo
instituta organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi
stroitel'stvu (for Baranov). (Building—Safety measures)

BARANOV, L.A.; GORBATOV, V.I.; YEVREINOV, D.V.; YERMAKOV, Ya.I.;
 PITERSKOV, N.I.; RYL'TSEV, A.U.; RYAZANTSEV, K.G.; TOROPOV, A.S.;
 TSEYTLIN, G.I.; YAROSHEV, D.M.; TRUBIN, V.A., glavnyy red.;
 SOSHIN, A.V., zam.glavnogo red.; RAKITIN, G.A., red.; GRINEVICH,
 G.B., red.; YEFIFANOV, S.P., red.; ONUFRIYEV, I.A., red.; KHOKHLOV,
 B.A., red.; ZIMIN, P.A., red.; TABUNINA, M.A., red.izd-va;
 OSENKO, L.M., tekhn.red.

[Manual on accident prevention and industrial sanitation during
 construction and repair operations] Spravochnoe posobie po tekhnike
 bezopasnosti i promsanitarii pri proizvodstve stroitel'no-montazh-
 nykh rabot. Pod red. G.A.Rakitina. Moskva, Gos.izd-vo lit-ry po
 stroit., arkhitekt. i stroit.materialam, 1961. 359 p.

(MIRA 14:4)
 1. Akademiya stroitel'stva i arkhitektury SSSR. Institut organi-
 zatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu.
 (Construction industry--Hygienic aspects)

BARANOV, L. A. Inzh.

Several recommendations to builders. Ochr. truda i zots. strokh.
4 no. 10:32-33 O '62. (MIRA 14:72)
(Bricklaying--Safety measures)

BARANOV, L.

Work methods at precast reinforced concrete plants. Stroitel'
no.11:29-30 N '61. (MIRA 15:1)
(Concrete plants--Safety measures)

BARANOV, Lev Aronovich, inzh.; FEDOSEYEV, Nikolay Pavlovich, kand.
tekhn. nauk; ZOLOTNITSKIY, N.D., doktor tekhn. nauk, prof.,
nauchnyy red.; CHEKHOVSKAYA, T.P., red. izd-va; BOROVNEV,
N.K., tekhn. red.; MOCHALINA, Z.S., tekhn. red.

[Standard stock equipment for safe construction and assembly
work] Tipovye inventarnye ustroistva i prispособleniia po bezo-
pasnomu vedeniiu stroitel'no-montazhnykh rabot. Moskva, Gos-
stroizdat, 1962. 99 p. (MIRA 15:6)

(Building--Safety measures)

BARANOV, L., inzh.

For the attention of construction workers. Okhr.truda i sots.
strakh. 5 no.2:32-33 F '62. (MIRA 15:2)
(Construction industry--Safety measures)

PRUSAKOV, M.B., inzh.; KUSTOV, V.M., inzh.; BARANOV, L.A., inzh.;
LUK'YANOV, S.I., inzh.; FROLOV, V.S., inzh., ~~retsensent~~;
USENKO, L.A., tekhn. red.

[Operation and repair of the equipment of d.c. traction
substations] [kspluatatsiia i remont oborudovaniia tiago-
vykh podstantsii postoiannogo toka. [By] M.B. Prusakov i dr.
Moskva, Transzheldorizdat, 1963. 211 p. (MIRA 16:5)
(Electric railroads--Substations)]

SUDARIKOV, V.Ye., inzh., red.; KLUTS, L.Ya., inzh., red.; PAVLOV, S.M., inzh., red.; BARANOV, L.A., inzh., red.; PEVZNER, A.S., red.izd-va; RODIONOVA, V.M., tekhn. red.

[Construction norms and regulations] Stroitel'nye normy i pravila. Moskva, Gosstroizdat. Pt.3. Sec.A. ch.11.[Safety engineering in construction] Tekhnika bezopasnosti v stroitel'stve (SNiP III-A. 11-62). 1963. 102 p. (MIRA 1618)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam stroitel'stva. 2. Gosudarstvennyy komitet po delam stroitel'stva Soveta Ministrov SSSR (for Sudarikov). 3. Tsentral'nyy komitet profsoyuza rabochikh stroitel'stva i promyshlennosti stroitel'nykh materialov (for Kluts). 4. Mezhdovedstvennaya komissiya po peresmotru Stroitel'nykh norm i pravil Akademii stroitel'stva i arkhitektury SSSR (for Pavlov). 5. Nauchno-issledovatel'skiy institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu Akademii stroitel'stva i arkhitektury SSSR (for Baranov).
(Construction engineering--Safety measures)

BARANOV, L.A., inzh.; PATENOVSKAYA, M.I., red.izd-va; SHEVCHENKO,
T.N., tekhn. red.

[Methodological instructions for treating problems of
safety engineering and industrial hygiene in plans for
the organization of construction and work output] Metodi-
cheskie ukazaniia po razrabotke voprosov tekhniki bez-
opasnosti i proizvodstvennoi sanitarii v proektakh orga-
nizatsii stroitel'stva i proizvodstva rabot. Moskva,
Gostroiizdat, 1963. 53 p. (MIRA 16:10)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut
organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi
stroitel'stvu.

(Industrial hygiene)
(Building--Safety measures)

BARANOV, Lev Aronovich, inzh.; TOROPOV, A.S., kand.tekhn. nauk,
nauchnyy red.; TABUNINA, M.A., red.; SHEVCHENKO, T.N.,
tekhn. red.

[Principles of safety engineering and industrial sanitation in construction] Osnovy tekhniki bezopasnosti i proizvodstvennoi sanitarii v stroitel'stve. Moskva, Stroiizdat, 1964. 194 p.
(MIRA 17:2)

PITERSKOV, N., inzh.; RYAZANTSEV, K., inzh.; IVLEV, N., inzh.;
KLUTS, L., inzh.; BARANOV, L., inzh.

Duty of every worker is to work without accidents. Okhr.
truda i sots. strakh. 6 no.6:28-31 Je '63. (MIRA 16:8)

L 42932-66 EWT(1) JXT(CZ)

ACC NR: AT6020543

SOURCE CODE: UR/2649/65/000/211/0011/0042

AUTHOR: Baranov, L. A. (Engineer)

ORG: none

TITLE: Frequency-pulse power converter

SOURCE: Moscow. Institut inzhenerov zheleznodorozhnogo transporta, Trudy, no. 811, 1965. Konstruktivnyye elementy i sistemy avtomatiki (Hardware and automatic control systems), 11-42

TOPIC TAGS: nonrotary electric power converter, railway equipment, telemetry equipment, electric measuring instrument

ABSTRACT: This is a review article describing and evaluating existing power converters used in the electrification of railroads, especially those used for remote control and power metering of traffic conditions of the roads and locomotive control. The power converters referred to measure and transform electric power into a form convenient for further utilization in telemetering. It is noted in the introductory chapter, which reviews the existing types of converters, that converters using a linear multiplication and individual circuits using quadratic multiplication must satisfy too stringent requirements for specific conditions under which traction ac substations and electric locomotives must operate. Consequently the remainder of the paper is devoted to a description of a static converter based on the principle of frequency-pulse multiplication, in which the load current is transformed into rect-

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L 42932-66

ACC NR: AT6020543

angular pulses whose frequency is proportional to the current. These pulses are then shaped and transformed into a form suitable for telemetering. In addition to the block diagram and schematic diagram of the apparatus, the article describes also the multivibrator used for the pulse generation and the RC filter used in the apparatus. Tests of individual units of the system are also described. By using an additional pickup it is possible to employ the setup to determine active power as well as apparent power. Orig. art. has: 18 figures, 20 formulas, and 2 tables.

SUB CODE: 09/ SUBM DATE: 00/ ORIG REF: 013/ OTH REF: 003

Card 2/2 MLP

BARANOV, Lev Aronovich, inzh.; FEDOSEYEV, Nikolay Petrovich,
kand. tekhn. nauk

[Standard stock equipment and devices for safe building and assembling operations] Tipovye inventarnye ustroistva i prispособleniia po bezopasnomu vedeniiu stroitel'no-montazhnykh rabot. Moskva, Stroiizdat, 1965. 190 p.
(MIRA 18:12)

BARANOV, L.F., inzh.

Using small precast sink pits in constructing foundations of
bridge supports. Trinsp.stroi. 10 no.4:49 Ap '60.

(MIRA 13:9)

(Kobozha River--Bridges--Foundations and piers)

BARANOV, L.F., inzh.

Assembly of the spans of a road bridge using a crane-truss.

Transp. stroi. 12 no.9:21-23 S '62. (MIRA 16:2)

(Bridge construction)
(Cranes, derricks, etc.)

SUBMITTED: December 7, 1957

AUTHORS:

Golubkov, P. V. and Tikhonov, Sh. Ye.

TITLE:

The Second All-Union Conference on Radioelectronics of the Ministry of Higher Education of the USSR (Vtoraya vseoyuznaya konferentsiya VVO SSSR po radioelektronike) - News item

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol. 3, No. 3, pp. 440 - 444 (USSR)

ABSTRACT:

The conference took place during September 23 - 29, 1957, at Saratovskiy gosudarstvennyy universitet imeni N.G. Chernyshevskogo (Saratov State University named after N.G. Chernyshevskiy). Apart from the university itself, the conference was attended by the representatives of some scientific research institutes of the Soviet and Ukrainian Academies of Science, various industrial enterprises and the interested ministries. This arrangement facilitated the discussion and evaluation of the papers presented and permitted the determination of plans for the future work to be carried out by the universities in the field of radioelectronics.

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The paper by A.A. Bessonov, G.A. Karmeyev, entitled: "The Problems of the Statistical Examination of the Results of Measurements in the Investigation of the Rapid Fluctuations of Ultra-Shortwave Radio Signals" aroused considerable interest; similarly, the paper by A.A. Bessonov and Ch.I. Tsyplov under the title "Investigation of the Variations of the Direct Radio Signal Propagation in the Non-uniform Troposphere over a Ground Path" was of considerable interest. The latter paper gave some results of an experimental investigation of the fading of the direct character of ultra-shortwave ground path. The statistical characteristics of the fading of the signal were investigated. An attempt was made to clarify the mechanism of the signal fading. During the course of the discussion, the great practical value of the work was emphasized and it was suggested that the work should be extended in order to attain a greater accuracy. Twelve papers and communications were read at the Signal-conductor Section. L.C. Erman gave an approximate method of Card 1/16 calculating the elements in a transistor operating with large signals.

made of ultra-thin clay layers, and the paper by G.N. Berentovskiy (the absorbing component). The investigation showed that the samples produced had satisfactory characteristics. The development of non-linear semiconductor resistances was described in a paper of V.V. Panyukov and L.K. Chirkov; resistance elements for powers of 10-15 W were produced and their applications were studied. A method of calculating an inverse peak current in p-n diodes was given in the paper of I.A. Rurakov and L.C. Bessonov. The formulas obtained made it possible to explain various forms of the peaks of the signal. The paper by G.N. Berentovskiy, V.N. Al'yan, G.N. Bessonov, L.A. Kiselev, V. Migulin, K.S. Rebevkina, Ya. Revtorov and T.N. Vasil'eva contained a survey of the works dealing with the applications of transistors in various radio circuits. G.N. Berentovskiy read a paper in which he gave the analysis of the operation of a transistor AC-DC converter. The experimental data corroborated the accuracy of the formulas proposed by the author and showed that a high conversion efficiency could be obtained with a number of Soviet transistors. During the conference, a number of trips were arranged to various industrial enterprises of the town of Saratov. During the closing plenary session of the conference, September 29, a unanimous resolution of thanks was adopted for the work of the conference and the plans for the future work was adopted. It was also decided that the third All-Union conference of the Ministry of Higher Education of the USSR on Radioelectronics would be held in Khar'kov in September, 1959.

NOV/139-53-6-2/29

AUTHOR: Baranov, L.I.

TITLE: A Method of Measurement of Permittivity of Semiconductors
(Ob odnom metode izmereniya dielektricheskoy
pronitsayemosti poluprovodnikov)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika,
1958, Nr 6, pp 9-13 (USSR)

ABSTRACT: A parallel-plate capacitor (Fig 1) is considered. It
is filled with a dielectric layer I of thickness d_1 ,
a dielectric layer II of thickness d_2 and a
semiconducting layer III of thickness d . The capacitor
is charged via a resistor R from a d.c. source whose emf
is $\mathcal{E}$. If the dielectric layers are not perfect
(lossless) it is necessary to use the equivalent circuit
shown in Fig 2 when the voltage drop across the
capacitor (U_t) is calculated. U_t is then given by
Eq (2) where r is the total resistance of the layers
I, II and III. The electrical state between the
capacitor plates is governed by Eq (3) - (5) where
 E_0 is the electrostatic field intensity in layers I and
II; E is the field intensity in the layer III; ϵ_0 and
 λ_0 are permittivity and conductivity of the layers I and

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SOV/139-58-6-2/29

A Method of Measurement of Permittivity of Semiconductors

III, ϵ and λ are permittivity and conductivity of the semiconducting layer III and σ is the surface density of charge on the layer III. The potential difference V_t across the layers II and III is given by Eq (10) .

$$\text{When } R \ll r; \lambda_0 \ll \lambda; 4\pi\lambda_0 RC \ll \epsilon_0 \quad (11)$$

and R, C are chosen to satisfy the equality

$$4\pi\lambda_0 C = \epsilon + \epsilon_0 \frac{d}{dt} \quad (12)$$

then the potential difference V_t is given by Eq (15) Differentiating Eq (15) with respect to time t , and then taking logarithms on both sides of the equality sign, the author deduced Eq (16) which gives $\ln(dV_t/dt)$ as a linear function of time t . It follows that if the conditions given by Eq (11) and (12) are satisfied and V_t is processed by differential and logarithmic amplifiers, then the straight line given

Card 2/4 by Eq (16) can be displayed on an oscillograph screen

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A Method of Measurement of Permittivity of Semiconductors

and the value of permittivity of the semiconductor ϵ can be deduced from the slope of this line. The value of this permittivity can also be determined from the ordinate $\ln(dV_t/dt)$ at $t = 0$ (Fig 3). If the conductivity λ of the semiconductor is not known, then the slope of the straight line and its ordinate at $t = 0$ make it possible to find ϵ and λ simultaneously. This method is very sensitive since a small departure from the condition (14) shows immediately as departure from linearity of the relationship between $\ln(dV_t/dt)$ and time t . The minimum value of the resistivity of the semiconductor $\rho = 1/\lambda$ at which measurement of its permittivity is possible by the method described, should be of the order of the minimum value of RC at which measurements are still reliable. Acknowledgements are made to Professor P.V. Golubkov, A.M. Aleskovskiy, Z.I. Kir'yashkina and A.S. Shekhter for their

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JOY/139 58-6-2/29
A Method of Measurement of Permittivity of Semiconductors

advice. There are 3 figures.

ASSOCIATION: Saratovskiy Gosuniversitet (Saratov State University)

SUBMITTED: 29th May 1958

Card 4/4

AUTHORS: Baranov, L.I. and Bekbulatov, M.S. ^{SOV/109-4-4-17/24}

TITLE: On the Problem of the Inverse Peak Current in p-n Junction Diodes (K voprosu o pike obratnogo toka v diodakh s p-n -perekhodom)

PERIODICAL: Radiotekhnika i elektronika, 1959, Vol 4, Nr 4, pp 705 - 709 (USSR)

ABSTRACT: It is known (Refs 1,2) that when a p-n junction diode is rapidly switched from the forward conduction regime to an inverse pulse regime, a large negative current peak may be observed (Figure 1). This phenomenon has been analysed by a number of authors (Refs 4-7) but it appears that a satisfactory solution has not been found. The problem is dealt with in the following. The diode is in the form shown in Figure 2. It is assumed that the concentration of holes in the n-region is p . The conductivity in the p-region is much greater than in the n-region; the total potential is developed across the p-n junction; the thickness of the junction is small, so that the carrier recombination in it can be neglected. The hole concentration and the current density in the n-region

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On the Problem of the Inverse Peak Current in p-n Junction Diodes
SOV/109-4-4-17/24
are therefore given (Ref 9) by:

$$\frac{\partial p}{\partial t} = -\frac{p}{\tau} + D \frac{\partial^2 p}{\partial x^2} \quad (1)$$

$$I = -eD \frac{\partial p}{\partial x} \quad (2)$$

where τ and D denote the lifetime and the diffusion coefficient of the holes in the small n-region. If the boundary conditions are as follows: $p = p_0$ at $x = 0$ and $p = 0$ at $x = L_0$, the solution of Eq (1) is in the form of Eq (4), where L denotes the diffusion length; this is defined by Eq (5). However, if Eq (1) is integrated under the following conditions: $p(x, 0) = 0$ and $p(0, t) = p_0$ and $p(L_0, t) = 0$, the expression for p is in the form of Eq (6). By analysing Eq (6), it can be

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On the Problem of the Inverse Peak Current in ^{SOV/109-4-4-17/24} p-n Junction Diodes

found that, when the switching pulse is short and the n-region is comparatively large, Eq (4) does not coincide with Eq (6). However, in many applications Eq (4) can be regarded as being sufficiently accurate. If at a time $t = 0$ the potential applied to the diode is reduced to zero, the concentration of the holes at the boundary between the n-region of the junction can be expressed by Eq (7), where V denotes the diffusion potential and d is the thickness of the junction. The solution of this equation is in the form of Eq (8), where D_0 is the diffusion coefficient of the holes in the p-n layer. From Eq (8), it follows that the boundary conditions for the determination of the inverse current can be written as Eqs (9), where α is defined by Eq (10). It is now possible to solve Eq (1) by inserting the boundary conditions of Eqs (9) and the initial distribution of Eq (4). If p is given by Eq (11), the problem is reduced to the solution of Eq (12). Consequently, the final solution is given by Eq (14). The first term of this solution coincides

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On the Problem of the Inverse Peak Current in ^{SOV/109-4-4-17/24} p-n Junction Diodes
 with the expression derived by Steele (Ref 4). The current in the n-region is given by Eq (17), where I_I and I_{II} are defined by Eqs (18) and (19), respectively. Again the first component of the current coincides with the formula given by Steele. Eqs (18) and (19) were used to calculate the values of the inverse current and the results are plotted in Figure 3; the dashed curve represents the formula obtained by Steele; the solid curves taken for various values of α show that the inverse peak can vary in shape or may even be totally absent. There are 3 figures and 11 references, 9 of which are English and 2 Soviet.

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On the Problem of the Inverse Peak Current in ^{SQV/109-4-4-17/24}p-n Junction Diodes

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Card 5/5

BARANOV, L.I.

Method for measuring permittivity of semiconductors. Izv.vys.ucheb.
zav.; fiz. no.6:9-13 '59. (MIRA 12:4)

1. Saratovskiy gosudarstvennyy universitet.
(Semiconductors)

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AUTHOR: Baranov, L. I.

TITLE: Measurement of the dielectric constant of semiconductors in pulse operation

PERIODICAL: Referativnyy zhurnal, Fizika, no. 5, 1962, 30-31, abstract 5E242
("Nauchn. yezhegodnik. Saratovsk. un-t Fiz. fak. i N.-i. in-t mekhan. i fiz.", 1955, Saratov, 1960, 91-892)

TEXT: The method suggested here for the measurement of the dielectric constant ϵ of semiconductors, consists in placing a semiconductor layer into a capacitor between two layers of the dielectric. Formulae describing the relationship between the time dependence of the pulsed voltage applied to the capacitor and the parameters of dielectric and semiconductor layers are presented.

A. Yu.

[Abstracter's note: Complete translation]

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